

WHAT IS CLAIMED IS:

1. A semiconductor device comprising:

first and second electrodes having layers containing copper as main components;

5 a semiconductor element arranged between said first and second electrodes and electrically connected to said first and second electrodes; and

a glass sealing member which seals said first electrode, said semiconductor element, and said second electrode,

10 wherein, in the first and second electrodes, ratios of the layers containing copper as main components are not less than 20 wt%.

2. The semiconductor device according to claim 1,

15 wherein said first and second electrodes are constituted by Dumet wires.

3. The semiconductor device according to claim 1,

wherein said semiconductor element is a diode.

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4. The semiconductor device according to claim 1,

wherein said semiconductor element is a Schottky barrier diode.

25 5. The semiconductor device according to claim 1,

wherein the semiconductor element has a metal electrode, and

wherein a sealing temperature of said glass sealing

member is a temperature at which silicification of said metal electrode of the semiconductor element is not enhanced.

6. The semiconductor device according to claim 1,

5 wherein a glass softening point of said glass sealing member is 560°C or less.

7. The semiconductor device according to claim 1,

10 wherein a sealing temperature of said glass sealing member is not 630°C or less.

8. The semiconductor device according to claim 1,

wherein a sealing temperature of said glass sealing member is 620°C or less.

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9. The semiconductor device according to claim 1,

wherein the semiconductor element has a bump electrode, and

20 wherein the thickness of said layers containing copper as main components are larger than said thickness of said bump electrode.

10. The semiconductor device according to claim 1,

wherein, in said first and second electrodes, ratios of 25 said layers containing copper as main components fall within the range of 20 to 25 wt%.

11. The semiconductor device according to claim 1,
wherein, in said first and second electrodes, ratios of
said layers containing copper as main components fall within
the range of 21 to 24 wt%.

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12. The semiconductor device according to claim 1,
wherein said first and second embodiments have core
portions and said layers containing copper as main components,
said layers being formed on the outer peripheries of said core
10 portions.

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13. The semiconductor device according to claim 12,
wherein said core portions of said first and second
electrodes comprise a nickel-containing alloy.

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14. The semiconductor device according to claim 12,
wherein said core portions of said first and second
electrodes are comprised of a nickel-containing alloy having a
nickel content of 45 wt% or less.

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15. The semiconductor device according to claim 12,
wherein said core portions of said first and second
electrodes are comprised of a nickel-containing alloy having a
nickel content falling within the range of 41 to 43 wt%.

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16. The semiconductor device according to claim 12,
wherein said core portions of said first and second

electrodes are comprised of an alloy containing iron and nickel as main components.

17. The semiconductor device according to claim 12,

5 wherein said first and second electrodes have copper oxide layers formed on the outer peripheries of said layers containing copper as main components.

18. The semiconductor device according to claim 17,

10 wherein the thickness of the copper oxide layers are 1.5 μm or less.

19. The semiconductor device according to claim 1,

15 wherein said semiconductor element comprises by a Schottky barrier diode having:
a semiconductor substrate;
an epitaxial layer formed on the semiconductor substrate;
and
a metal electrode formed on the epitaxial layer.

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20. The semiconductor device according to claim 19,
wherein said metal electrode has a tungsten film.